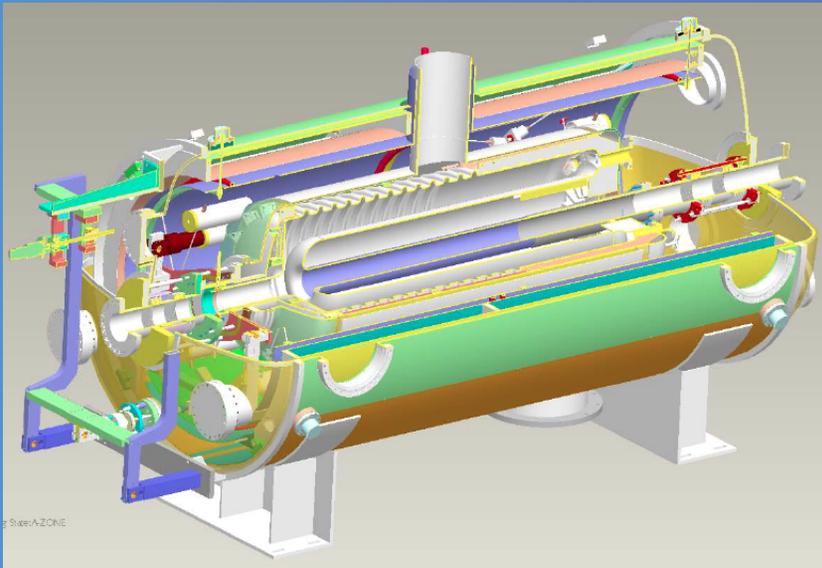


# Off normal events and machine protection

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# Off normal events, consequences and actions

Event	Impact on cavity	Consequences	Beam	RF/Cavity
<b>Cavity quench</b>	Excessive heat dissipation	Helium bath pressure burst	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>HOM damper quench</b>	Excessive heat dissipation	Elevated HOM damper temperature	-	RF OFF, Cavity to "home" position, Fully insert FD
<b>RF system trip</b>	No RF power for field regulation	High amplitude/phase noise	-	Cavity to "home" position, Fully insert FD
<b>Tuner malfunctioning</b>	Cavity voltage out of spec	Cavity quench	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>Cryogenic problem</b>	Loss of He pressure/level control	High He pressure/low liquid level	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>Cavity/beam pipe vacuum leak</b>	Poor vacuum	Numerous, depending on scenario	Dump beam, Close gate valves	RF OFF, Cavity to "home" position, Fully insert FD
<b>Insulation vacuum leak</b>	High heat leak to LHe	High He pressure/low liquid level	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>Multipacting</b>	Excessive local heating	Vacuum spike, cavity quench, elevated temperature	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>FD malfunctioning</b>	Excessive RF power	FD overheating	Dump beam	RF OFF, Cavity to "home" position, Fully insert FD
<b>Beam dump</b>	-	No beam induced voltage	-	RF OFF, Cavity to "home" position, Fully insert FD
<b>Beam current too low</b>	-	Not possible to maintain voltage	-	RF OFF, Cavity to "home" position, Fully insert FD